

PORAY-KOSHITS, B. A.

Imidazole derivatives. XI. Condensation of phthalic anhydride with derivatives of benzimidazole. L. S. Efros, B. A. Poray-Koshits, and S. G. Farbenshtein (*Leningrad Technol. Inst., Leningrad*). *Zhur. Obshch. Khim.* 23, 1691-5 (1953); *Ch. C.A.* 47, 12367d.—Only those derivs. of benzimidazole which possess an active substituent in the 2-position can react with  $\text{o-C}_6\text{H}_4(\text{CO}_2\text{O})$  (I) in the presence of  $\text{AlCl}_3$ ; among such substances are benzimidazolinone, 1,3-dimethylbenzimidazolinone, and the 2-dimethylamino-benzimidazole. They appear to react as cations. Heating 24.6 g.  $\text{o-C}_6\text{H}_4(\text{NH}_2)_2 \cdot \text{HCl}$  and 10 g. urea at  $150^\circ$  until the melt resolidified, extg. with warm dil. NaOH, and acidifying the ext. gave 88% 2-benzimidazolinone, m.  $308^\circ$  (from EtOH). This (3 g.) and 3.4 g. I stirred in 60 ml.  $\text{C}_2\text{H}_5\text{Cl}$ , and the mixt. treated with 10 g.  $\text{AlCl}_3$ , heated 3.5 hrs. to  $90^\circ$ , quenched in dil. EtOH, and the solvent steam distd. gave 3.57 g. 5-(*o*-carboxybenzoyl)-2-hydroxybenzimidazole, m. about  $300^\circ$ . This heated with concd.  $\text{H}_2\text{SO}_4$  1 hr. on a steam bath gave 100% corresponding anthraquinone deriv.,  $\text{C}_{14}\text{H}_8\text{O}_4$ , yellow, m. above  $350^\circ$  (from quinoline or pyridine). Similarly, 3,4-tolylene diamine and urea gave 70% 5-methylbenzimidazolinone, m.  $292^\circ$  (from EtOH), which with I and  $\text{AlCl}_3$  similarly gave 64% 5-(*o*-carboxybenzoyl)-6-methyl-2-hydroxybenzimidazole, m.  $294^\circ$  (from AcOH), cyclized by  $\text{H}_2\text{SO}_4$  to the corresponding anthraquinone deriv.,

yellow, m. above  $350^\circ$  (from quinoline). Methylation of benzimidazolinone with  $\text{Me}_2\text{SO}$  in 25% NaOH at  $60^\circ$  gave, after a final 1.5-hr. refluxing period, 71% 1,3-dimethyl-2-benzimidazolinone, m.  $103.5-7.0^\circ$  (from petr. ether); this with I and  $\text{AlCl}_3$  readily gave 5-(*o*-carboxybenzoyl)-1,3-dimethyl-2-benzimidazolinone, m.  $268^\circ$  (from dil. AcOH), cyclized in 100% yield to the corresponding anthraquinone deriv., yellow, m. above  $350^\circ$  (from AcOH). Heating 2-chlorobenzimidazole with  $\text{Me}_2\text{NH} \cdot \text{HCl}$  in the presence of aq. KOH in sealed tube 5-6 hrs. at  $150-60^\circ$  gave 80% 2-dimethylaminobenzimidazole (m.  $314-16^\circ$  from EtOH);  $\text{HCl}$  salt, m.  $291^\circ$ . This with I and  $\text{AlCl}_3$  readily yielded pinkish needles of 5-(*o*-carboxybenzoyl)-2-dimethylaminobenzimidazole, not characterized further but cyclized with  $\text{H}_2\text{SO}_4$  to the corresponding anthraquinone deriv., orange-red;  $\text{HCl}$  salt, yellow, m. above  $360^\circ$ . Heating 1.34 g. benzimidazolinone with 6.7 ml.  $\text{POCl}_3$  and 2-3 drops HCl in a sealed tube 3 hrs. at  $160-70^\circ$ , concn. in vacuo, and treatment with ice gave on addn. of  $\text{NH}_4\text{OH}$  to the filtrate 1.2-1.4 g. 2-chlorobenzimidazole, m.  $212-15^\circ$  (from dil. EtOH). Benzimidazole does not condense with I in the presence of  $\text{AlCl}_3$ . G. M. Kosolapoff.

PORAY-KOSHITS, B.A.

Reactivity of some derivatives of 2-methylbenzimidazole  
I. Reactions at the hydrogens of the methyl group. B. A. Poray-Koshits and Kh. L. Muravich (Leningrad Technol. Inst., *Zhur. Obshchei Khim.* 23, 1583-93 (1955). —It was shown that the enhanced reactivity of the Me group in 2-methylbenzimidazole is caused by the pos. charge of the N atom conjugated with the Me group. The effects of Ph, NO<sub>2</sub>, or their combinations are secondary, in that in their conjugation with the imino group of imidazole they block the electron pair of the 2nd N atom. The most powerful in this respect is a 5-NO<sub>2</sub> group. In the absence of an onium N in the imidazole ring these groups show no effect on the reactivity of the Me group. The theoretical basis for these conclusions is discussed with numerous references. Refluxing 2.9 g. 1,2-dimethylbenzimidazole-MeI (I), 1.5 g. m-O<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>CHO, and 10 ml. EtOH 1 hr. with 5-10 drops piperidine gave 40% 3-methyl-2-(m-nitrosyl)benzimidazole-MeI, yellow, m. 203° (from H<sub>2</sub>O). Similar condensation with p-ONC<sub>6</sub>H<sub>4</sub>NMe<sub>2</sub> gave violet (o-C<sub>6</sub>H<sub>4</sub>NMe<sub>2</sub>: C(CH<sub>3</sub>)-

NC<sub>6</sub>H<sub>4</sub>NMe<sub>2</sub>)\*I<sup>-</sup>, m. 270° (from EtOH). This (0.42 g.) heated with 25 ml. 3% HCl underwent hydrolysis (yellow color), yielding the aldehyde (detected by formation of the p-azobenzylhydrazones, m. 270°). No azo dyes formed in attempted condensations of p-O<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>N<sub>2</sub>Cl with I in aq. pyridine or AcOH solns. However, 55.5% 1-methyl-2-(dimethylaminosyl)-5(6)-nitrobenzimidazole-MeI, red, m. 248° (from MeOH), formed readily from 1,2-dimethyl-5(6)-nitrobenzimidazole-MeI (II) and p-Me<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>CHO refluxed 1 hr. in EtOH in the presence of piperidine. Similarly, was formed 50% 1-methyl-2-(m-nitrosyl)-5(6)-nitrobenzimidazole-MeI, yellow, m. 265° (from 80% AcOH), when m-O<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>CHO was employed. With p-ONC<sub>6</sub>H<sub>4</sub>N-

NEt<sub>2</sub> was obtained 45% violet azomethine, (4-O<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>N-

NMe<sub>2</sub>: C(CH<sub>3</sub>)-NC<sub>6</sub>H<sub>4</sub>NEt<sub>2</sub>)\*NMe<sub>2</sub>+I<sup>-</sup>, green, m. 202° (from EtOH), hydrolyzed with 3% HCl to the initial aldehyde. To 3.3 g. II in 300 ml. H<sub>2</sub>O was added 40 ml. pyridine, then

(at 5°) p-O<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>N<sub>2</sub>Cl soln. from 1.4 g. amine, yielding 50% crude product, which, after purification by extrn. with petr. ether, formed green crystals, m. 203° (after further

extrn. with MeOH), apparently 4-O<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>N: C(CH<sub>3</sub>)-N, C-

H<sub>4</sub>NO<sub>2</sub>-p)\*NMe<sub>2</sub>. Refluxing 31.5 g. o-O<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>Cl 3 hrs. with 40 g. PhNH<sub>2</sub>, quenching in H<sub>2</sub>O-HCl, steam-distg. the unreacted material and extg. the black residue with petr. ether gave pure o-PhNH<sub>2</sub>C<sub>6</sub>H<sub>4</sub>NO<sub>2</sub>, m. 75°. This (5 g.) refluxed 1.5-2 hrs. with 20 g. Na<sub>2</sub>S in 50 ml. EtOH, dild. with H<sub>2</sub>O, acidified with HCl, boiled, filtered from S, and treated with NH<sub>4</sub>OH, gave o-PhNH<sub>2</sub>C<sub>6</sub>H<sub>4</sub>NH<sub>2</sub>, m. 79-80° (from dil. EtOH). Heating MeI in MeOH with 1-phenyl-2-methylbenzimidazole in a sealed tube 4 hrs. at 140° gave the corresponding methiodide, (III) m. 217-18° (from EtOH-Et<sub>2</sub>O). The latter (1.75 g.) and 0.75 g. p-Me<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>CHO refluxed 1 hr. in EtOH with a few drops of piperidine gave 62.2% 1-phenyl-2-(p-dimethylaminosyl)benzimidazole-MeI, red, m. 178-80° (from H<sub>2</sub>O). No reaction took place between III and p-ONC<sub>6</sub>H<sub>4</sub>NMe<sub>2</sub> in EtOH in the presence of piperidine; similarly, p-O<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>N<sub>2</sub>Cl failed to react with III under various conditions. Refluxing 2 g. 1-phenyl-2-methyl-5-nitrobenzimidazole-MeI (IV) and 0.75 g. p-Me<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>CHO 1 hr. in Ac<sub>2</sub>O gave violet or orange-red (the same quality of color was observed in crystn. from EtOH) 1-phenyl-2-(p-dimethylaminosyl)-5-nitrobenzimidazole-MeI, m. 245°. The violet product forms more often from EtOH, while from Ac<sub>2</sub>O the orange form is prevalent. IV and m-

$\text{O}_2\text{NC}_6\text{H}_4\text{CHO}$  refluxed in EtOH in the presence of piperidine gave 61.6% yellow 5-nitro-1-phenyl-2-(*m*-nitroxy)benzimidazole (VI), decomp.  $220^\circ$ . Heating 1-phenyl-2-methyl-5-nitrobenzimidazole with EtI in EtOH (4 hrs. at  $140^\circ$ ) gave the ethiodide (V), m.  $260^\circ$ . This with  $m\text{-O}_2\text{NC}_6\text{H}_4\text{CHO}$  in EtOH in the presence of piperidine readily gave VI. IV failed to condense with  $p\text{-O}_2\text{NC}_6\text{H}_4\text{NMe}_2$ , but it did condense with  $p\text{-O}_2\text{NC}_6\text{H}_4\text{N}_2\text{Cl}$  in aq. pyridine, as described above, yielding green 5-nitro-1-phenyl-2-(*p*-nitroxy)benzimidazole, m.  $292^\circ$ ; V gave the same product. Reducing 20.2 g.  $2,4\text{-}(\text{O}_2\text{N})_2\text{C}_6\text{H}_3\text{Cl}$ , 10.8 g.  $\text{c-C}_6\text{H}_5(\text{NH}_2)_2$ , 8.2 g.  $\text{NaOAc}$ , and 60 ml. EtOH 1 hr. gave 80.5% 2-amino-3',4'-dinitrodiphenylamine, yellow, m.  $151^\circ$  (from EtOH and AcOH); the yellow form turns red near the m.p. Refluxed with AcO-AcOH, it gave 92% *N*-Ac deriv., yellow, m.  $238^\circ$ ; refluxed with 4*N* HCl, it is slowly hydrolyzed to the HCl salt of the original amine, m.  $147^\circ$ , unstable in warm  $\text{H}_2\text{O}$ . The amine heated with AcO in a sealed tube 2 hrs. at  $180^\circ$  gives 85.2% 2-diacetyl-2-amino-3',4'-dinitrodiphenylamine, decomp.  $189^\circ$ , which readily loses 1 Ac group in warm EtOH in the presence of piperidine. The di-Ac deriv. heated with 4*N* HCl in a sealed tube 2 hrs. at  $170^\circ$ , then treated with  $\text{NH}_4\text{OH}$ , gave 94% 1-(2,4-dinitro)phenyl-2-methylbenzimidazole, yellow, m.  $170^\circ$  (from  $\text{C}_6\text{H}_6$ ); this failed to couple with the various aldehydes or nitro derivs. G. M. Kosolapoff

*PORAY-KOSHITS, B. A.*

USSR/Chemistry - Dyes

Card 1/1 Pub. 151 - 35/38

Authors : Poray-Koshits, B. A., and Remizov, A. L.

Title : Synthesis and properties of azomethines from weakly-basic aromatic amines

Periodical : Zhur. ob. khim. 24/2, 372-375, Feb 1954

Abstract : An analysis of the condensation of primary aromatic amines with aromatic aldehydes showed that the process of formation of aromatic azomethines is reversible. It was found that azomethines obtained from aromatic amines with weakened basic characteristics easily submit to hydrolysis under the effect of moisture even in the absence of acid. A method for the synthesis of azomethines from weakly basic primary aromatic amines, which requires no greater aldehyde surplus, is described. Seven references: 1-USA; 2-USSR and 4-German (1892-1947).

Institution : The Lenseviet Technological Institute, The A. E. Poray-Koshits Technological Laboratory of Organic Dyes, Leningrad

Submitted : September 13, 1953

PORAY-KOSHITS, B. A.

USSR

✓Synthesis and properties of azomethines from weakly  
basic aromatic amines. B. A. Porai-Koshits and A. L.  
Rernizov. *J. Gen. Chem. U.S.S.R.* 24, 331-3(1954)(Engl.  
translation).—See *C.A.* 49, 4572b. H. L. H.

*PORAY-KOSHITS, B. A.*

USSR/Chemistry - Heteroatomic compounds

Card 1/1 : Pub. 151 - 22/37

Authors : Poray-Koshits, B. A.; Kononova, L. N.; and Efros, L. S.

Title : Study of imidazole derivatives. Part.12.-Oxidation of 1,2-naphthimi-  
dazole

Periodical : Zhur. ob. khim. 24/3, 507-512, Mar 1954

Abstract : The chemical similarity between 1,2-naphthimidazole and phenanthrene was established by studying the effect of the imidazole ring on its condensation with the benzene ring. This similarity was also confirmed by the oxidation of 1,2-naphthimidazole. It was found that the oxidation reaction leads first to the formation of 1,2-naphthimidoazole-3,4-quinone which converts into phenylimidazole-dicarboxylic acid. Eight references: 4-USSR and 4-German (1892-1953). Table.

Institution : The Leningrad Technological Institute, The A. E. Poray-Koshits Technological Laboratory of Organic Dyes, Leningrad

Submitted : September 25, 1953

PORAY-KOSHITS, B.A.

USSR - Imidazole derivatives. XII. Oxidation of 1,2-naphth-  
imidazole. B. A. Porat-Koshits, L. N. Koshova, and L. S. Ch  
ifra. J. Gen. Chem. U.S.S.R. 26, 517-22 (1954) (Engl.  
(translation).—See C.A. 49, 6233t.

H. L. H

(2)

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PORAY-KOSHITS, B. A.  
USSR/Chemistry

Card 1/1

Authors : Poray-Koshits, B. A.; Efros, L. S.; Vertkina, V. N.; and Lutsenko, V. V.

Title : Quinaldine derivatives obtained from aromatic amines and simple vinyl ethers

Periodical : Zhur. Ob. Khim. 24, Ed. 5, 895 - 898, May 1954

Abstract : Quinaldine is a valuable intermediate product used in the synthesis of stable acid and cyanine dyes. The reaction of primary aromatic amines with simple vinyl ethers appears to be the general method of obtaining quinaldine derivatives. The success of the reaction depends upon the nature of the substitute oriented in the nucleus. In case of a highly activated molecule of the reacting amine as well as in the case of de-activation, especially of the o-position relative to the amino group, no quinaldine derivatives can be obtained. Nine references; 4 German since 1883.

Institution: The Leningrad Technological Institute, Leningrad, The A. E. Poray-Koshits Technological Laboratory of Organic Dyes

Submitted : December 24, 1953



PORAY-KOSHITS, B.A.

✓ Synthesis and properties of some derivatives of benz-  
hydrazole. I. Reaction of 1,2,4-triazinobenzene with  
carboxylic acids. B. A. Porat-Koshits and G. M. Khur-  
kharova. J. Gen. Chem. U.S.S.R. 24, 1643-44 (1949) Engl.  
(translation). See C.A. 49, 13221h. B. M. R.

PORAY-KOSHITS, B. A.  
USSR/Chemistry - Synthesis

Card 1/1 : Pub. 151 - 35/42

Authors : Poray-Koshits, B. A., and Kharkharova, G. M.

Title : Synthesis and properties of certain benzimidazole derivatives. Part 1.-  
Reaction of 1,2,4-triaminobenzene with carboxylic acids

Periodical : Zhur. ob. khim. 24/9, 1651-1659, Sep 1954

Abstract : The reaction of 1,2,4-triaminobenzene with carboxylic acids and the properties of 5-amino derivatives of benzimidazole were investigated. The effect of hydrochloric acid concentration, temperature and heating period on the reaction of ortho-diamines with carboxylic acids in the presence of hydrochloric acid, is discussed. Optimum conditions favorable for the synthesis of certain 5-amino-benzimidazole derivatives were established. Eight references: 6-USSR and 2-German (1881-1953). Tables.

Institution : ...

Submitted : April 2, 1954

PORAY-KOSHITS, B.A.

USSR/Fitting Out of Laboratories - Instruments,  
Their Theory, Construction, and Use.

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Abs Jour : Ref Zhur - Khimiya, No 3, 1957, 8650

Author : Veller, Ye.A., and Poray-Koshits, B.A.

Inst : Leningrad Technical Institute imeni Lensovet.

Title : Investigation of the Absorption Spectra of Hydrophobic  
Dyes and Their Utilization in the Preparation of Light  
Filters.

Orig Pub : Tr. Leningr. tekhnol. in-ta im. Lensoveta, No 30, 1954,  
3-33

Abstract : The spectra of solutions of hydrophobic dyes (HD) in the  
wavelength region 200-800 m $\mu$  are given. It has been es-  
tablished that the investigated solutions of HD in dichlo-  
roethane (1 : 500-1 : 1,000) follow sufficiently accurate-  
ly Bouguer's dilution law. The investigation has shown  
that organic solvents of varying degrees of polarity have  
an insignificant effect on the molar extinction coefficient

Card 1/2

SHAPOSHNIKOV, V.G., PORAY-KOSHITS, B.A., redaktor; DENISENKO, L., redaktor; VUYEK, M., ~~tekhnicheskii~~ redaktor

[Organic dyestuff] Organicheskie krasilashchie veshchestva. 4-e  
perer. izd. Pod red. B.A.Porai-Koshitsa. Kiev, Gos. izd-vo tekhn.  
lit-ry USSR, 1955. 518 p. (MIRA 8:7)  
(Dyes and dyeing--Chemistry)

PORAY-KOSHITS, B. A.

Tautomeric compounds. XIX. Tautomerism of 4l-  
5-brazolonyl-*m*-nitrophenylmethane. A. E. Porai-Koshits,  
B. A. Porai-Koshits, and N. G. Lipina. J. Gen. Chem.  
U.S.S.R. 25, 1561-5 (1965) (Engl. translation).—See C.A.  
59, 2017g. P. M. H.

CH ②  
MB BWH

PORAY-KOSHITS, B. A.

✓ Tautomeric compounds. XIX. Tautomerism of dipy-  
razolyl-*m*-nitrophenylmethane. A. E. Porat-Koshits, B. A.  
Porat-Koshits, and N. G. L'vova (Lensovet Technol. Inst.,  
Leningrad). Zhur. Obshchei Khim. 25, 1044-9 (1955);  
cf. Sbornik Pamyaty A. E. Porat-Koshits 1949, 84; C.A.  
50, 1780a. Spectroscopic study of colorless and yellow  
forms of bis(1-phenyl-5-oxo-3-methyl-2-pyrazolin-4-yl)-*m*-ni-  
trophenylmethane, indicates a keto-enol equil. The colorless  
form is the enol form, the yellow is the keto form. The  
spectra are shown. The colorless form (m. 160°) treated in  
EtOH with a little concd. NaOH and BzCl gave a high yield  
of the *di-Bz* deriv., m. 171°, which is colorless; the same is  
obtained similarly from the yellow form (which m. 227°).  
Methylation of the colorless isomer with MeI in the presence  
of MeONa in MeOH gave the *di-Me* deriv. (I), C<sub>24</sub>H<sub>22</sub>N<sub>4</sub>O<sub>4</sub>,  
yellow, m. 178° (HCl salt, m. 140°); the same is formed on  
methylation of the yellow isomer. To 1-phenyl-3,4-di-  
methyl-5-pyrazolone and *m*-O<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>CHO in 98% EtOH  
was added concd. HCl and the mixt. was dild. with hot H<sub>2</sub>O  
and boiled 20 min. yielding on cooling the same I as obtained  
above. The colorless isomer shows an absorption max. at  
3550 cm.<sup>-1</sup>, while the yellow isomer has an absorption max.  
at 1720 cm.<sup>-1</sup>, thus confirming the keto-enol tautomerism.  
G. M. Kosolapoff

PORAY-KOSHITS, B. A.

USSR/Organic Chemistry - Theoretical and General Questions on Organic Chemistry,  
E-1

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 61373

Author: Poray-Koshits, B. A., Kharkharova, G. M.

Institution: None

Title: Synthesis and Properties of Some Derivatives of Benzimidazole.  
Interaction of o-phenylene-diamine with Some Carboxylic Acids

Original  
Periodical: Zh. obshch. khimii, 1955, 25, No 11, 2138-2143

Abstract: Investigated was the reactivity (R) of a number of carboxylic acids: anthranilic, p-aminobenzoic, m-aminobenzoic, nicotinic, acetic, hydrocinnamic, phenyl acetic, benzoic, p-chlorobenzoic, formic, mandelic and anisic, on their interaction with o-phenylenediamine (150°-160°, 5 hours) and the effects upon R of concentration of HCl. A criterion of R was the yield of the corresponding benzimidazole. Increase in concentration of HCl increases R up to a certain limit after which the R decreases.

Card 1/2

PORAI - KOSHITS, B.A.

62 ✓ Physicochemical properties of hydrophobic dyes. III. Solubility of dyes in a series of organic solvents. E. A. Veller and B. A. Porai-Koshits. *Zhur. Priklad. Khim.* 27, 857-63(1955); cf. *C.A.* 49, 14327a. —The soly. of dyes in org. solvents was detd. spectrophotometrically as follows (the soly. in % is given in EtOH, Me<sub>2</sub>CO, (CH<sub>2</sub>Cl)<sub>2</sub>, C<sub>6</sub>H<sub>6</sub>, and di-Bu phthalate, resp.): Sudan Yellow G 0.038, 0.304, 2.84, 3.04, 0.9; Red J for acetate silk 0.23, 2.18, 1.15, 0.5, 0.90; Cyanine Green 5G base 0.023, 0.17, 0.81, 0.8, 0.43; Blue K for acetate silk 0.12, 0.24, 0.19, 0.04, 0.13; Sudan Blue G 0.040, 0.19, 1.28, 0.9, 0.0528; Sudan Red 7B 0.040, 1.5, 12.7, 15.0, 3.4; Acid Bright Green J 10.5, 0.19, 0.004, 0, 0. Generalizations concerning the soly. in polar and nonpolar solvents are made and the absorption spectra of the above solns. are reproduced. G. M. K. ①



PORAY-KOSHITS, B. A.

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Physicochemical properties of hydrophobic dyes. I.  
The application of Douguer's dilution law to dyes. B. A.  
Veller and B. A. Poray-Koshits. J. Appl. Chem. U.S.S.R.  
28, 473-81 (1955) (Engl. translation).—See C.A. 50, 576a.  
B. M. R.

PORAY-KOSHITS, B.A.

3

The liquid-vapor equilibrium of the systems diketene-  
acetic anhydride and diketene-acetic acid. M. S. Dina-  
burg and B. A. Porat-Koshits. J. Appl. Chem. U.S.S.R.  
28, 517-19 (1955) (Engl. translation).—See C.A. 50, 44c.  
B. M. R.

DMH

Poray-Koshits

AID P - 3423

Subject : USSR/Chemistry

Card 1/2 Pub. 152 - 8/18

Authors : Veller, Ye. A. and B. A. Poray-Koshits

Title : Application of Bouguer's dilution law to dyes

Periodical : Zhur. prikl. khim., 28, 5, 497-506, 1955

Abstract : The results of spectrophotometric measurements are shown in diagrams. The structure and synthesis of Sudan Yellow G, Sudan Red 7B, Sudan Blue G, Blue K for rayon, and Cyanine Green 5G are discussed. Hydrophobic azo and anthraquinone dyes dissolved in dichloroethane comply satisfactorily with Bouguer's dilution law (5-6% deviation). Five tables, 6 diagrams, 3 references, all Russian (1947-1955).

Zhur. prikl. khim., 28, 5, 497-506, 1955

AID P - 3423

Card 2/2      Pub. 152 - 8/18

Institution : Laboratory of the Technology of Organic Dyes im.  
A. Ye. Poray-Koshits of the Leningrad Technological  
Institute im. Lensovet.

Submitted : N 4, 1953

*Poray-Koshits, B. A.*

AID P - 3429

Subject : USSR/Chemistry

Card 1/1 Pub. 152 - 14/18

Authors : Dinaburg, M. S. and B. A. Poray-Koshits

Title : Study of liquid-vapor equilibrium in the systems  
diketene - acetic anhydride and diketene - acetic acid

Periodical : Zhur. prikl. khim., 28, 5, 548-552, 1955

Abstract : Comparison of the experimental data with values given  
in the literature for pure substances showed that data  
obtained for diketene-acetic anhydride are in good  
agreement while the data for the system diketene -  
acetic acid deviate markedly from those obtained for  
ideal binary systems. Five tables, 3 diagrams, 4  
references, 1 Russian (no date).

Institution : None

Submitted : 0 29, 1953

PORAY-KOSHITS, B.A.

CH Physico-chemical properties of hydrophobic dyes. II.  
Absorption spectra of hydrophobic dyes in some organic sol-  
vents. E. A. Veller and B. A. Porai-Koshits. J. Appl.  
Chem. U.S.S.R. 28, 713-16(1955)(Engl. translation).  
See C.A. 49, 14327a. B. M. R. ①

PORAY-KOSHITZ, B.A.

K

USSR/Optics

Abs Jour: Referat Zhur-Fizika, 1957, No 4, 10428

Author : Veller, E.A., Poray-Koshitz, B.A.

Inst : Not Given

Title : Absorption Spectra of Hydrophobic Dyes in Certain Organic Solvents.

Orig Pub: Zh. prikl. khimii, 1955, 28, No 7, 750-755

Abstract: A study was made of the effect of polar and non-polar solvents on the absorption spectra of the following dyes: Sudan yellow G, Sudan red 7V, cyanine yellow base 5G, Sudan green G, aloe (purple) Zh, and acid green Zh. It is shown that in individual cases the solvents effect the character of the absorption spectrum. For example, for the aloe Zh dye, dissolved in polar liquids, the wavelength band is shifted by 100-150 A towards the longer waves, compared with the solution in benzol. The band in the visible region of the spectrum of the Sudan yellow G dye differs little when changing over from solvent to solvent, but in the ultraviolet

Card : 1/2

PORAY-KOSHITS, B. A.

USSR/Chemical Technology. Chemical Products and Their I-16  
Application--Industrial synthesis of dyestuffs.

Abs Jour: Ref Zhur-Khimiya, No 3, 1957, 9538

Author : Veller, Ye., Poray-Koshits, B.

Inst : Not given

Title : Solubility of Dyes in a Number of Organic  
Solvents

Orig Pub: Zh. prikl. khimii, 1955, Vol 28, No 8, 857-863

Abstract: The solubility of a number of hydrophobic dyes  
in a series of organic polar and nonpolar sol-  
vents has been determined by the method of  
adsorption spectroscopy. The results from the  
investigation of solutions of Sudan Yellow G,  
Red Zh for acetate silk, Cyanine Green 5G base,  
Blue K for acetate silk, Sudan Blue G, Sudan  
Red 7B, and as a control, Acid Brilliant Green  
Zh in alcohol, acetone, ethylene-chloride,  
benzene, dibutylphthalate, and an 80-20 mixture

Card 1/2



AID P - 3746

Subject : USSR/Chemistry

Card 1/1 Pub. 152 - 10/22

Authors : Poray-Koshits, A. Ye., B. A. Poray-Koshits, L. S. Efros,  
M. I. Krylova, D. A. Luvshits, K. Yu. Mar'yanovskaya  
I. P. Aleksandrova, and K. E. Ul'man

Title : Synthesis of some aromatic amines with trifluoromethyl  
groups and study of them as products for ice dyeing

Periodical : Zhur. prikl. khim. 28, 9, 969-975, 1955

Abstract : The preparation of benzotrichloride and benzotrifluoride  
and the nitration of benzotridluorides are described in  
detail. 16 references, 6 Russian (1863-1950).

Institution : None

Submitted : D 25, 1953

USSR/Organic Chemistry - Synthetic Organic Chemistry, E-2

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 941

Author: Davidenkov, L. R., and Poray-Koshits, B. A.

Institution: None

Title: Investigation of the Derivatives of Benzothiazole. II. Reactions of 2-Benzothiazolesulfonic Acid with Nitrogen-Containing Bases

Original

Periodical: Zh. obshch. khimii, 1956, Vol 26, No 3, 868-872

Abstract: As a result of the ease of substitution of the sulfone group of the electron-donor residue of 2-benzothiazolesulfonic acid (I), the latter easily reacts with various nitrogen-containing bases. This property can be utilized in the preparation of 2-substitute derivatives. Differences were observed in the behavior of the mobile sulfone group and halogens in aromatic compounds: 2-chlorobenzothiazole reacts with aniline (II) and with methyl aniline, while I reacts only with II. Preparation of 2-aminobenzothiazole: 6 gms of the K-salt of I (III) are heated with 35 ml of 25%  $\text{NH}_3$  in a sealed

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PORAY-KOSHITS, B. A.

Chem 7 4  
Chloroanhydrides of mono- and dichloro-3  
A. Poray-Koshits, L. S. Bfros, and K. Yu. Mst'yanovskaya.  
U.S.S.R. 104,237, Nov. 25, 1956. Ketene is chlorinated  
with gaseous Cl either in the gaseous phase or in a soln. of  
the chlorination product, after which the chloro anhydrides  
are sepd. in the usual way. M. Hosh

PM

ngi

PORAY-KOSHITS, B.A.

✓ Chlorination of ketene. B. A. Porat-Koshits, L. S. Efros, and K. Yu. Mar'yanovskaya (Leningrad Technol. Inst., Leningrad). *Zhur. Obshchei Khim.* 26, 420-31 (1950); cf. Houben-Weyl, *Die Methoden der organischen Chemie* 1930, Vol. III, No. 2, p. 216 (C.A. 24, 1389).—Reaction of ketene with Cl in gas phase or in solvent regardless of proportion of reactants always yields a mixt. of  $\text{ClCH}_2\text{COCl}$  and  $\text{CHCl}_2\text{COCl}$ , as well as some  $\text{AcCl}$ . The respective proportions of the products varies with the ratio of reactants. Among solvents,  $\text{PhNO}_2$  and  $\text{ClCH}_2\text{COCl}$  were used. Addn. of dinitrochlorobenzene, trinitrobenzene, chloranil, or  $\text{PCl}_5$  failed to change the reaction course. Reaction in refluxing  $\text{ClCH}_2\text{COCl}$  also gave the same result. Passage of ketene at 65 g./hr. and Cl at 220 g./hr. into a refluxing mixt. of 200 g.  $\text{ClCH}_2\text{COCl}$  and  $\text{CHCl}_2\text{COCl}$  (42.5% of latter) gave in 14.5 hrs. 2200 g. mixed  $\text{ClCH}_2\text{COCl}$  and  $\text{CHCl}_2\text{COCl}$  contg. 45.7% of the latter and 287 g.  $\text{AcCl}$ . Passage of Cl at 75-80° into 38.9 g.  $\text{ClCH}_2\text{COCl}$  and 1.1 g. pyridine 3.5 hrs. gave 31%  $\text{ClCH}_2\text{COCl}$ , 5.2%  $\text{CHCl}_2\text{COCl}$ , and 65.4%  $\text{CCl}_2\text{COCl}$ . G. M. Kosolapoff

chem

PM

PORAY-KOSHITS, A.Ye. [deceased]; PORAY-KOSHITS, B.A.; LIPINA, N.G.

Research in the field of tautomeric compounds. Part 21. Tautomerism  
of dipyrazolonyl-phenyl-methane derivatives. Zhur.ob.khim. 26 no.3:  
872-877 Mr '56. (MLBA 9:8)

1. Leningradskiy tekhnologicheskij institut imeni Lenooveta.  
(Methane) (Isomerism)

~~PORAY-KOSHITS, B.A.~~

PORAY-KOSHITS, B.A.

Benzothiazole derivatives. II. Reaction of 2-benzothia-  
zolesulfonic acid with nitrogen bases. L. R. Davidenko  
and B. A. Porat-Koshits. J. Gen. Chem. U.S.S.R. 20,  
980-92 (1955) (English translation).—See C.A. 50, 14712g.  
H. M. B.

2

R/M

~~PORAY-KOSHITS, B.A.~~  
PORAY-KOSHITS, B.A.

15  
Tautomeric compounds. XXI. Tautomerism of deriva-  
tives of dipyrazolonylphenylmethane. A. E. Porat-Koshits,  
B. A. Porat-Koshits, and N. G. Lavina. J. Gen. Chem.  
U.S.S.R. 26, 993-7 (1956) (English translation).—See C.A.  
h 50, 44720j. B. M. R.

RM MK

PORAY-KOSHITS, B.A.

Structure of products of alkaline treatment of quaternary salts of benzimidazole derivatives. B. A. Poray-Koshits and Kh. L. Muravich (Soviet Technol. Inst., Leningrad). Zhur. Obshchei Khim. 26, 2487-83 (1956). — Alk. treatment of methiodides of 1,2-dimethyl- and 1-methylbenzimidazoles are not carbinol compds. but acetyl- or formyldimethyl-o-phenylenediamines, as shown by their reactions. Treatment of 5.6 g. 1,2-dimethylbenzimidazole-MeI with 60 ml. hot H<sub>2</sub>O and 60 ml. 40% NaOH yields after brief heating 94% N-acetyl-N,N'-dimethyl-o-phenylenediamine, m. 164°. This treated with diazotized p-O<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>NH<sub>2</sub> in Et<sub>2</sub>O gave a yellow diazamine compound, C<sub>16</sub>H<sub>18</sub>O<sub>2</sub>N<sub>4</sub>, m. 120-1°, which in dil. HCl gives a red soln., which couples with 2-C<sub>6</sub>H<sub>5</sub>OH, yielding a red azo dye. The red acidic soln. of the compd. on drying yields some original diazamine compd., m. 120°, and a red product, m. 189°, which is less sol. in EtOH and which is the true azo dye. The same products form when the coupling is run in MeOH instead of Et<sub>2</sub>O. The diazamine compd. treated with 80% HCO<sub>2</sub>H gave 60% red azo dye, m. 189°, identical with the above, while the latter reduced with Sn-HCl gave mixed p-phenylenediamine hydrochloride and 1,2-dimethyl-5(6)-aminobenzimidazole-MeCl (I), which were sepd. by extr. with EtOH, yielding the pure methochloride, m. 298°. The 5(6)-NO<sub>2</sub> analog of I treated with 40% NaOH readily gave N-acetyl-N,N'-dimethyl-4(5)-nitro-o-phenylenediamine, darkening at 175°, m. 185°; the same forms from N,N'-dimethyl-4(5)-nitro-o-phenylenediamine and Ac<sub>2</sub>O. The



*Porai-Koshits, B. A., Muravich, Kh. L.,*

product, reduced with Sn-HCl gave I. Heating ...  
azole with MeI-MeOH 4-8 hrs. at 140° gave 90% 1-methyl-  
benzimidazole-MeI, which heated with 40% NaOH gave  
70% colorless *N*-formyl-*N,N'*-dimethyl-*o*-phenylenediamine  
(II), m. 74-5°. II couples with diazotized *p*-O<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>-  
NH<sub>2</sub> yielding 43% red-brown product which yielded light  
yellow diazoamino compound, m. 119°, C<sub>14</sub>H<sub>10</sub>O<sub>2</sub>N<sub>4</sub>, which  
gave a red color in acids and coupled with 2-naphthol. The  
2nd reaction product is the azo dye corresponding to the  
diazoamino compd.; the dye could not be isolated in the  
pure state. The transformations described above indicate  
that in coupling with diazotized nitroaniline the azo group  
enters the benzenoid ring. The coupling product from 1-

methylbenzimidazole is apparently *o*-OHCNMeC<sub>6</sub>H<sub>4</sub>N-  
MeN:NC<sub>6</sub>H<sub>4</sub>NC<sub>6</sub>H<sub>4</sub>-*p*.  
G. M. Kosolapoff

2

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PM MK

PORAY-KOSHITS, B. A.

79-2-29/58

**AUTHORS:** Ginzburg, O. F.; Poray-Koshits, B. A.; Krylova, M. I.; Lotareychik, S. M.

**TITLE:** Synthesis of Benzimidazole Compounds Containing Bis-(Beta-Ethyl Chloride)-Amino Group (Sintez benzimidazol'nykh soyedineniy soderzhashchikh bis - (beta-khloretill)-aminogruppu).

**PERIODICAL:** Zhurnal Obshechey Khimii, 1957, vol 27, No 2, pp. 411-414 (U.S.S.R.)

**ABSTRACT:** Investigation was made to determine the physiological activity of substances in which the bis-(beta-ethyl chloride)-amino group is bound with the benzimidazole grouping. It was established that the physiological activity of such compounds depends to a large extent upon the nature of the radicals in the compounds. 2-bis-(beta-ethyl chloride)-aminomethylbenzimidazole and 1-beta-ethyl chloride-2-bis(beta-ethyl chloride)-aminomethylbenzimidazole respectively were synthesized from 2-bis-(beta-oxethyl)-aminomethylbenzimidazole and 1-beta-oxethyl-2-bis-(beta-oxethyl)-aminomethylbenzimidazole during reaction with thionyl chloride. It is explained that the latter two compounds can be derived as a result of condensation of diethanolamine with 2-chloromethylbenzimidazole and 1-beta-oxethyl-2-chloromethylbenzimidazole. The condensation of 2-

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PORAY-KOSHITS, B. A.

The problem of transformations of indicators. O. R. Ginzburg and B. A. Poray-Koshits (Leningrad Technol. Inst., Leningrad). *Zhur. Obshch. Khim.* 27, 539-52(1957).  
The literature on the nature of transformations during color change in indicators is reviewed and the Hantzsch concept of pseudoelectrolytes (*Ber.* 32, 3108(1899); *C.A.* 22, 4219) is shown to be untenable while the colored-ion concept introduced by Ostwald is defended. In indicators existing in 2 tautomeric forms the apparent ionization const. of the substance characterizes the less ionized form. In selection of an indicator for a given purpose the ionization const. must be supplemented with the knowledge of the rate of establishment of equil. among the tautomers or dissociated forms.  
G. M. Kosolapoff

4  
1-4B2d  
1-4B1x

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VERTKINA, V.N.; DINABURG, M.S., kand. khim. nauk; MAZAL', R.F.;  
MAR'YANOVSKAYA, K.Yu.; PORAY-KOSHITS, B.A., prof.; UL'MAN, K.B.;  
MFROS, L.S., prof.

Developments in the synthesis of direct dyes. Khim. nauka i prom.  
3 no.2:191-212 '58. (MIRA 11:6)

(Azo dyes)

AUTHORS: Poray-Koshits, B. A., Frankovskiy, Ch. 79-28-4-18/60

TITLE: Investigations in the Field of the Diamines of Benzimidazole Series (Issledovaniye v oblasti diaminov benzimidazol'nogo ryada).  
I. The Synthesis and Physical and Chemical Properties of Diamines (I. Sintez i fiziko-khimicheskiye svoystva diaminov)

PERIODICAL: Zhurnal Obshchey Khimii, 1958, Vol. 28, Nr 4, nn. 928-934 (USSR)

ABSTRACT: In the present paper the authors synthesized the diamines of the benzimidazole series and examined their physical properties. As could be assumed from theoretical considerations and from data found in publications, the diamines of this series should furnish substantive dyes in the case of an diazotiation and an azo combining. The diamines of the benzimidazole series have been described only little in publications. Therefore it was necessary to develop a method for their production. These diamines proved to be accessible according to their method of synthesis

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Investigations in the Field of the Diamines of  
Benzimidazole Series. I. The Synthesis and Physical  
and Chemical Properties of Diamines

79-28-4-18/60

(see experimental part). The dependence of the reactivity of aromatic amines in acylation on their basicity constants, on diazotization, on the formation of azomethines on the diazoamino compounds and on the imidazole derivatives was investigated already earlier (Reference 1). In the present paper the authors investigated the dependence of the basicity constants of the synthesized diamines on their structure. The problems of the interrelations existing between the basicity constants (of the 1st and of the 2nd), of the coincidence of the diazotisation of both amino groups etc. are very complicated and of great theoretical and practical interest. In the cases described here the dependence of the basicity constant on structure was even more complicated, because the investigated products possess three basicity constants. As the first basicity constant in most investigated diamines is about the same and approximates the value of the basicity constant of benzodazole ( $k \approx 1.10^{-9}$ ) it obviously must be

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Investigation in the Field of the Diamines of  
Benzimidazole Series. I. The Synthesis and Physical  
and Chemical Properties of Diamines

79-28-4-18/60

attributed to the imidazole nucleus. From this it follows, that the 1st and 2nd constant must be attributed to the amino groups of the investigated diamines. The basicity constants were determined by the method of potentiometric titration. The results of the investigations are given in the table.

Summary: The diamines of the benzimidazole series possessing 2 amino groups in different benzene nuclei, have nearly identical basicity constants independent from the fact, whether their amino groups are conjugated to each other, or not. The cause of this phenomenon must be looked for in the fact, that above all the most basic imidazole nucleus reacts in the salt formation. Its transformation into a onion ion interrupts conjugation between the amino groups.

There are 1 figure, 1 table and 8 references, 4 of which are Soviet.

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Investigations in the Field of the Diamines of  
Benzimidazole Series. I. The Synthesis and Physical  
and Chemical Properties of Diamines

79-28-4-18/60

ASSOCIATION: Leningradskiy tekhnologicheskii institut imeni Lensovet  
(Leningrad Institute for Technology imeni Lensovet)

SUBMITTED: March 20, 1957

Card 4/4



AUTHORS: Poray-Koshits, B. A., Frankovskiy, Ch. 79-28-4-19/60

TITLE: Investigations in the Field of the Diamines of Benzimidazole Series (Issledovaniye v oblasti diaminov benzimidazol'nogo ryada).  
II. Substantive Properties of the Azo Dyes- of Diamine Derivatives (II. Substantivnyye svoystva azokrasiteley - proizvodnykh diaminov)

PERIODICAL: Zhurnal Obshchey Khimii, 1958, Vol. 28, Nr 4, pp. 934-938 (USSR)

ABSTRACT: According to a number of authors (References 1-4) one of the essential factors of the substantiality of dyes is represented by its chemical structure, in particular the length of the conjugated compound chain and the linear arrangement of molecules. The present paper is a continuation of the investigations by A. Ye. Poray-Koshits in the field of the substantive benzimidazole dyes. According to the opinion of A. Ye. Poray-Koshits the benzimidazole

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Investigations in the Field of the Diamines of  
Benzimidazole Series. II. Substantive Properties of the  
Azo Dyes- of Diamine Derivatives

79-28-4-19/60

nucleus is a strong chromophore influencing the substantial properties of the dye molecule. Therefore it could be expected that the benzimidazole dyes possess a sufficiently high substantiability. In a previous paper (Reference 5) 7 diamines of this series were described and their structure as well as their basicity constants were accurately determined. The aim of the present paper was the synthesis of the azo dyes of the investigated diamine derivatives and the examination of their substantial properties. 1,5-naphthol sulfo acid for single dyes as well as the naphthion and H,I -, and the Chicago-SS-acids were employed as azo components. With these examples the influence of the diamino structure on the substantive properties of the dyes and the influence of the azo components was observed. Table 1 and 2 give the results.

Summary: Dyes formed from bidiazotized diamines of the benzimidazole series and from 1,5 naphtho sulfo acid, possess different substantibilities, depending on

whether the azo groups are mutually conjugated or

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Investigations in the Field of the Diamines of  
Benzimidazole Series. II. Substantive Properties of the  
Azo Dyes- of Diamine Derivatives

79-38-4-19/60

not. According to the substantiality of the obtained dyes  
it is possible to pass a judgement on the presence of the  
absence of conjugation between the amino groups of the ini-  
tial diamines. The character of the influence of other azo  
components (e. g. I-, H-, or Chicago - SS acids) on the  
substantiality of azo dyes is analogous to that of the  
benzidine dye series.

There are 2 tables and 7 references, 5 of which are Soviet.

ASSOCIATION: Leningradskiy tekhnologicheskii institut imeni Lensovet  
(Leningrad Institute for Technology imeni Lensovet)

SUBMITTED: March 20, 1957

Card 3/3

5 (3)

AUTHOR:

Poray-Koshits, B. A.

SOV/74-28-9-2/7

TITLE:

Structure of Aromatic Diazo Compounds

PERIODICAL:

Uspekhi khimii, 1959, Vol 28, Nr 9, pp 1036-1051 (USSR)

ABSTRACT:

In this paper the author gives a survey on the researches in the field of the diazo compounds, and sets forth a theoretical concept, elaborated together with his co-operators. The diazo compounds, which were discovered hundred years ago by Peter Griess (Ref 1), are not only of great practical importance, but also of the greatest theoretical interest. One of the properties, particularly interesting in practice is the capability of the diazo compounds to react in the interaction between aromatic phenols, amines, and other compounds whereby azo dyestuffs are formed. The reactions in the presence of copper salts as catalysts (Sandmeyer's reaction) are numerous. By applying various catalysts it is possible to pass from the diazo compounds to halogen derivatives, hydrocarbons, phenol ether, nitriles of aromatic acids, nitro compounds, and the like. Some of the many reactions of practical value were described. The solution of the problem of the structure of the diazo compounds which is the subject of many scientific publications,

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## Structure of Aromatic Diazo Compounds

SOV/74-28-9-2/7

is extremely difficult owing to the lack of stability of these compounds. This was also the reason why shortly after the discovery of the diazo compounds their structure was a matter of vehement discussions. The diazo compounds were found to be bases which together with mineral acid yielded salts (Refs 5-10). Furthermore they proved to be acids yielding salts with caustic lyes (Refs 11, 12). With some diazo compounds it was possible to separate two different derivatives with acids (Refs 13, 14) and 2 salts with lyes (Refs 15, 17). Finally, neutral, for the greater part unstable compounds (Refs 18-23) were obtained. Each form, newly obtained or ascertained, was examined as to its capability of entering azo-combinations. The diazo compounds which were capable of such reactions were given the name of normal diazo compounds, whereas the others were called isodiazo-compounds. The theoretical concept suggested by the author and his collaborators distinguishes itself from all hitherto concepts in so far as it is based on the generally recognized physico-chemical processes of the dissociation - molarization - hydrolysis. Without using any additional hypotheses the authors tried to prove that these processes, applied to diazo compounds, are subject to the laws

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## Structure of Aromatic Diazo Compounds

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of the protolytic equilibrium in the series of the tautomeric substances. These processes are extremely complicated which is due to the fact that some of them take place slowly and that in this connection a five-fold buffer system has to be dealt with: diazo compound, diazo cation, diazo hydrate, diazo anion, and nitrosamine, whereby the properties of the diazo compounds are mainly due to the amphoteric nature of the diazo hydrate of which only minimum amounts are contained in the equilibrium mixtures. As regards the problem of the stereo isomerism of diazo compounds, having equivalent structures, stress should be laid on the fact that this stereo isomerism has no connection whatsoever with the reactivity of the diazo compounds and with the reaction of the azo composition. In principle the possibility of such a stereo-isomerism cannot be denied, but we have not yet sufficient proofs of its existence. The kinetic relations in the series of the diazo compounds which might contribute to the explanation of the structure have not yet been sufficiently investigated. In spite of the great number of still insolved problems, the fundamentals of the structure of the aromatic diazo compounds seem to be obvious, that on the basis of the innumerable phenomena described in the

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Structure of Aromatic Diazo Compounds

SOV/74-28-9-2/7

various scientific publications, many facts can be explained which formerly were considered ununderstandable or inexplicable. The following collaborators of the author are mentioned: I. V. Grachev, Bryuske, B. V. Passet, and Chin Key-day. There are 4 figures and 156 references, 30 of which are Soviet.

ASSOCIATION: Leningradskiy Tekhnologicheskii in-t im. Lensovet  
(Leningrad Technological Institute imeni Lensovet)

Card 4/4

5 (5, 4)  
AUTHORS:

Poray-Koshits, B. A., Pasnet, B. V.

SOV/72-22- 145/77

TITLE:

Spectral Investigation of the Aromatic Diazo Compounds  
(Spektral'noye izucheniye aromaticheskikh diazovershinnykh)

PERIODICAL:

Zhurnal obshchey khimii, 1959, Vol 29, Nr 4, pp 1397-1408  
(USSR)

ABSTRACT:

The investigation of the absorption spectra of the aromatic diazo compounds in an acid medium shows a characteristic intensive absorption within the boundaries 260-280 m $\mu$  as soon as constant equilibrium has been attained. The absorption curves of the diazo compounds in an alkali medium show absorption maxima at 275-330 m $\mu$ . The absorption curves have a constant position between the first two within the range of an average percents (from 7-9). The absorption curves of an arbitrary diazo compound in the case of arbitrary percents intersect at one point. The presence of the "isobestic points" (izobesticheskiye tochki) points out that no other forms of diazo compounds exist in aqueous solutions except a diazo cation and a diazo anion in the case of constant equilibrium independently of the percents. This was assumed by C. Wittmer and E. Bollinger (Ref 1) however, not confirmed by experiment.

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Spectral Investigation of the Aromatic Diazo Compounds

307/79-29-1-75/77

The "isobastic" points for some diazo compounds are given in the enclosed table. At the same time as the authors, however, independently of them E. Lewis and E. Suhr (Ref 2) detected the presence of these points in o-nitrodiazobenzene, emphasize, however, themselves the low degree of accuracy of the physicochemical data obtained by them on the strength of their spectrum analytical determinations. In accordance with the law Lambert-Beer the authors could improve the values of the hydrolysis constants of the diazo cation (Ref 4) according to the method of Firort (Ref 3) obtained earlier by them according to less accurate methods. The concentration variations of the diazo cation in the case of the reaction with alkali showed that this reaction is not subject to the equation of the first order and that the inverse reaction of the diazo anion proceeds with acid at the first moment like a reaction of the first order. This corresponds to the data of Lewis and Suhr. There are 1 table and 4 references, 2 of which are Soviet.

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Spectral Investigation of the Aromatic Diazo  
Compounds

SOV/79-29-4-75/77

ASSOCIATION: Leningradskiy tekhnologicheskii institut imeni Lensovet  
(Leningrad, Technological Institute imeni Lensovet)

SUBMITTED: January 15, 1958

Card 3/3

5.3700,15.8000

75668  
SOV/80-32-10-17/51

AUTHORS: Veller, Ye. A., Poray-Koshits, B. A.

TITLE: Plastic Film Light Filters Absorbing the Red and Near Infrared Spectrum Part

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Vol 32, Nr 10, pp 2230-2234 (USSR)

ABSTRACT: This is Communication 4 of a series of investigations of the physical and chemical characteristics of hydrophobic dyes and their application to the preparation of light filters. Attempts to produce, from known organic dyes and their metallic compounds, plastic film filters absorbing the red and near infrared spectrum part were unsuccessful. The authors, therefore, used copper salts of unsaturated fatty and naphthenic acids; these salts are soluble in organic solvents and their spectral properties correspond to the spectra of mineral copper salts. NaOH in alcohol was added to an alcohol solution of copper salt and oleic acid. Copper soap thus formed was extracted

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Plastic Film Light Filters Absorbing the  
Red and Near Infrared Spectrum Part

75668  
SOV/80-32-10-17/51

with benzene; the separation of the liquids into layers was helped by addition of a small quantity of water. Oleic acid, NaOH, and copper salt of a mineral acid were taken in equivalent amounts. The solutions in the organic solvent were dried with anhydrous sodium sulfate; the distillation of the solvent was made under hydrogen to avoid oxidation. Copper soap of ricinoleic acid was similarly prepared; the acid was refined carefully by the Varrentrapp method to separate the saturated solid acids which form copper salts insoluble in nonpolar solvents. Copper salt concentration necessary for a given spectral characteristic of the filter was determined by the method previously worked out by the authors (Tr. LTI imeni Lensovet, 1955, Vol XXX, p 3). The determined amount was then added to ethyl cellulose in benzene, and the plastic film prepared in the usual manner. The spectral characteristics are given in Fig. 4. The films were cast by Medvedeva, P. A., and Yanovskaya, Sh. G. (Chair of Plastics, LTI imeni Lensovet). There are 5 figures; and 14 references, 4 U.S., 1 German, 9 Soviet. The most recent English-language references are: The

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Plastic Film Light Filters Absorbing the  
Red and Near Infrared Spectrum Part

75668  
80V/80-32-10-17/51

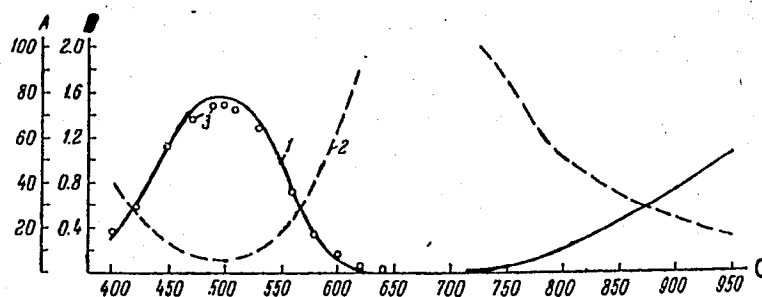


Fig. 4. Spectral characteristics of a pellicular plastic-copper oleate filter. A, transmission (in %); B, density; C, wavelength (in millimicrons); 1, transmission; 2, density; 3, transmission of theoretically calculated filter.

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Plastic Film Light Filters Absorbing the  
Red and Near Infrared Spectrum Part

75668  
SOV/80-32-10-17/51

Chemistry of Synthetic Dyes and Pigments, Edited by  
H. Lubs, 248 (1955); Martell and Caloin, Chemistry of  
the Metal Chelate Compounds (1952); P. McSmith et al.,  
J. Am. Chem. Soc., 64, 1650, (1942); ibid., 63, 3071  
(1941).

SUBMITTED: November 22, 1958

Card 4/4

5.3610

77402  
SOV/79-30-1-63/78

AUTHORS: Poray-Koshits, B. A., Passet, B. V.

TITLE: Concerning Structure and Conversions of Diazo Compounds. XII. Spectral Investigations of Some Aromatic Diazo Compounds

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 1, pp 286-290 (USSR)

ABSTRACT: Absorption spectra of some aromatic diazo compounds (see Figs. 1, 2, 3, and 4, and Table A) were taken and investigated. The following conclusions were made: the aqueous solutions of diazo compounds have a characteristic selective light absorption in ultra-violet region. Different absorption bands are observed in acid and alkaline media. At pH = 7-9 the absorption curves of different diazo compounds have isobestic points. Absorption curves of any diazo compound at any pH cross at the same point (see Fig. 3). The presence of isobestic points on the absorption curves of the aqueous solutions indicates that

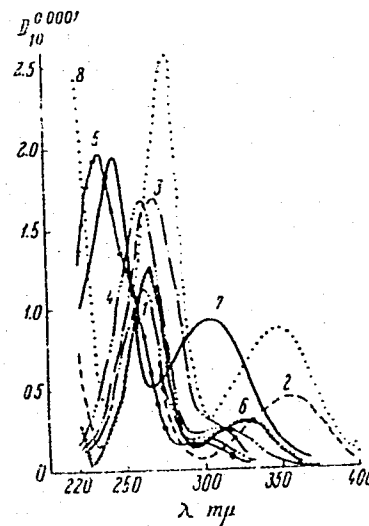
Card 1/8

Concerning Structure and Conversions of Diazo Compounds. XII. Spectral Investigations of Some Aromatic Diazo Compounds

77402

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Fig. 1. Absorption spectra of aqueous solutions of diazo compounds in acid media (pH = 3-4): (1) diazobenzene; (2) o-methoxydiazobenzene; (3) p-sulfo-diazobenzene; (4) p-nitrodiazobenzene; (5) m-nitrodiazobenzene; (6) o-chloro-diazobenzene; (7) 2,4-nitrochloro-diazobenzene; (8) 2,6-dichlorodiazo-benzene.



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Concerning Structure and Conversions of Diazo Compounds. XII. Spectral Investigations of Some Aromatic Diazo Compounds

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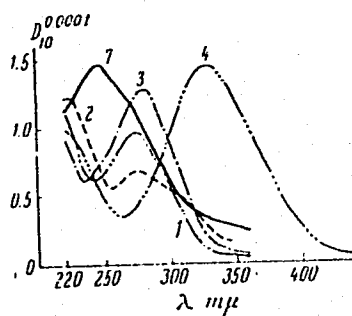


Fig. 2. Absorption curves of aqueous solutions of diazocompounds in alkaline media (pH = 11-12). (For notation see Fig. 1.)

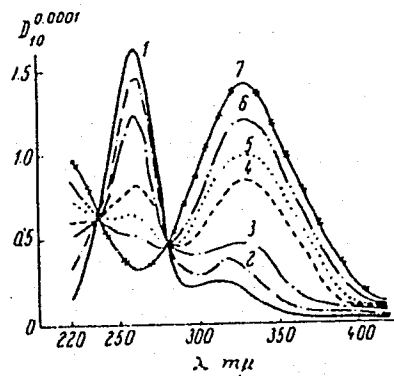


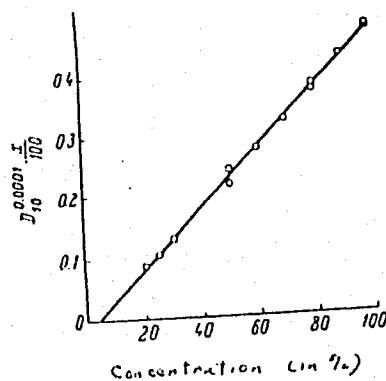
Fig. 3. Absorption curves of aqueous solutions of p-nitrodiazobenzene at different pH. values: (1)  $\leq 4.0$ , (2) 7.0, (3) 7.38, (4) 7.67, (5) 7.80, (6) 7.98, (7)  $\geq 11$ .

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Concerning Structure and Conversions of Diazo  
Compounds. XII. Spectral Investigations of  
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Fig. 4. Dependence of optical  
density of aqueous p-nitro-  
diazobenzene solution at  
 $\lambda$  280 m $\mu$  on its concentration.



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Concerning Structure and Conversions of Diazo Compounds. XII. Spectral Investigations of Some Aromatic Diazo Compounds

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Table A

Diazo Compound	Absorption maxima (m $\mu$ ) characteristic of		Presence of isobestic points (m $\mu$ )
	cation	anion	
O-Methoxy-diazobenzene	266, 355	223, 273	250, 274, 327
Diazobenzene	263, 300	273	245, 268
p-Sulfodiazobenzene	269, 310	281	245, 278
p-Nitrodiazobenzene	260, 312	330	238, 280
2,6-Dichlorodiazobenzene	277, 347	< 220	248

at an equilibrium, there are only diazo cations and diazo anions present. At the same time and independently, E. Lewis and H. Suhr (see reference) also established the presence of isobestic points on the absorption curves of p-nitrodiazobenzene, but they did not draw any conclusions, except that it

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Concerning Structure and Conversions of Diazo  
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confirmed the previous assumption by the authors of the present article and by H. Zollinger (Chemie der Azofarbstoffe, Birkhauser Verlag, Basel und Stuttgart, 1958) that solutions of diazo compounds, at an equilibrium, contain no undissociated forms of diazo compounds. It was found that the aqueous solutions of all investigated diazo compounds through a wide pH range of the media follows Beer's-Lambert's law. The obtained information enabled the authors to determine more accurately the hydrolysis constant of the diazo cation  $K = 10^{-15.2}$  and also other constants.



$$K = \frac{[\text{O}_2\text{NC}_6\text{H}_4\text{N}_2\text{O}^{\ominus}][\text{H}^{\oplus}]^2}{[\text{O}_2\text{NC}_6\text{H}_4\text{N}_2^{\oplus}]}$$

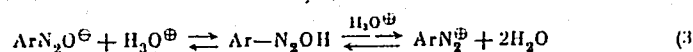
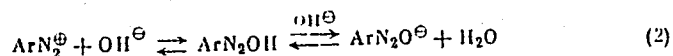
Card 6/8

Concerning Structure and Conversions of Diazo  
Compounds. XII. Spectral Investigations of  
Some Aromatic Diazo Compounds

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Neutralization of a diazo cation with alkali is not  
a first-order reaction; neutralization of diazo anion  
at first proceeds as a first-order reaction; i.e.,  
a consecutive reaction.



There is 1 table; 4 figures; and 20 references, 7 U.S.,  
7 U.K., 1 Swiss, 3 German, 2 Soviet. The 5 most  
recent U.S. and U.K. references are: R. Le Fevre,  
J. Sousa, J. Chem. Soc., 1957, 744; E. Lewis, H. Suhr,  
J. Am. Chem. Soc., 80, 1367 (1958); M. Aroney,  
R. Le. Ferve, L. Werner, J. Chem. Soc., 1955, 276;

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Concerning Structure and Conversions of Diazo  
Compounds. XII. Spectral Investigations of  
Some Aromatic Diazo Compounds

77402  
SOV/79-30-1-63/78

R. Whetsel, G. Hawkins, F. Johnson, J. Am. Chem. Soc.,  
78, 3360 (1956); L. Anderson, J. Steedly, J. Am.  
Chem. Soc., 76, 5144 (1954).

ASSOCIATION: Lensoviet Leningrad Institute of Technology  
(Leningradskiy tekhnologicheskij institut imeni  
Lensoveta)

SUBMITTED: January 15, 1959

Card 8/8

5.3610

77891

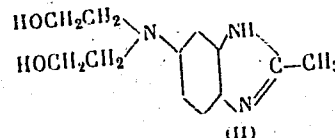
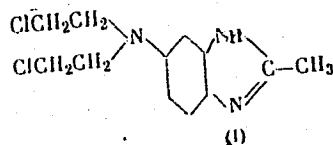
SOV/79-30-2-42/78

AUTHORS: Ginzburg, O. F., Poray-Koshits, B. A., Mar'yanovskaya, K. Yu.

TITLE: Synthesis of Benzimidazole Compounds Containing the Bis( $\beta$ -Chloroethyl) amino Group. II. 2-Methyl-5-bis( $\beta$ -Chloroethyl)amino-Benzimidazole

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 2, pp 570-573 (USSR)

ABSTRACT: Compounds of imidazole series are formed on reduction of acyl derivatives of o-amino-azo-dyes. The above method was used for the preparation of 2-methyl-5(6)-bis-( $\beta$ -hydroxyethyl)aminobenzimidazole (II), which reacts with thionyl chloride forming 2-methyl-5(6)-bis( $\beta$ -chloroethyl)aminobenzimidazole (I).



Card 1/2

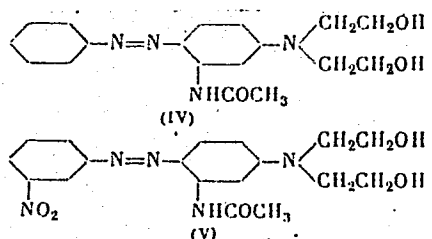
m-Acetylamino-bis-( $\beta$ -hydroxyethyl)aniline (III) (8.5 g, mp 116°)

Synthesis of Benzimidazole Compounds  
Containing the Bis( $\beta$ -Chloroethyl)amino  
Group. II. 2-Methyl-5-bis( $\beta$ -Chloroethyl)  
amino-Benzimidazole

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SOV/79-30-2-42/78

was obtained from m-acetylaminoaniline (10 g) and ethylene oxide.  
Phenyldiazonium and m-nitrophenyldiazonium salts were coupled with III,  
and dyestuffs IV and V were obtained.



There are 4 references, 2 Soviet, 1 German, 1 U.K. The U.K. reference  
is: British Patent 560290.

ASSOCIATION:

Lensovet Leningrad Technological Institute (Leningradskiy tekhnologicheskii institut imeni Lensoveta)

SUBMITTED:

February 14, 1959

Card 2/2

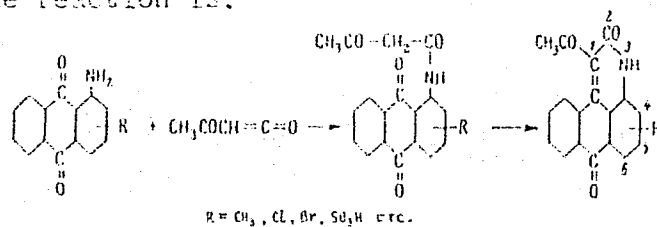


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10010  
301/11-20-2-20/60

AUTHORS: Kirzner, N. A., YU Pol-pol, Poray-Koshits, B. A.  
TITLE: Reaction of Amines of Anthraquinone Series With Diketene  
PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, No 3,  
pp 890-896 (USSR)

ABSTRACT: 1-Aminoanthraquinone and its derivatives react with diketenes to yield acetoacetyl derivatives of aminoanthraquinone. The more basic the amine, the more readily the reaction takes place. The scheme of the reaction is:



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Reaction of Amines of Anthraquinone  
Series With Diketene

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SOV/19-50-3-50/69

The obtained acetoacetyl derivatives in the reaction with dilute alkalis yield corresponding 1-acetyl-anthrapyridones. The following compounds were prepared: 1-acetoacetylaminanthraquinone, (yield 97%), mp 170-171°; 1-acetylanthrapyridone (yield 95%), mp 285-287°; 1-acetoacetyl-amino-2-methylantraquinone (yield 81%), mp 138°; 1-acetyl-4-methylanthrapyridone, mp 310°; 1-acetoacetyl-amino-2-chloroanthraquinone, mp 100°; 1-acetyl-4-chloroanthrapyridone, mp 312°; sodium salt of 1-acetoacetylaminanthraquinone-2-sulfonic acid, (yield 81%); sodium salt of 1-acetylanthrapyridone-4-sulfonic acid (yield 75%); 1-acetoacetyl-amino-4-chloroanthraquinone (yield 83.5%), mp 162°; 1-acetyl-6-chloroanthrapyridone, mp 317°; 1,4-di(acetoacetyl-amino)-anthraquinone (yield 88%), mp 192°; 1,8-diacetylanthradipyridone, does not melt at 340°;

Card 2/4

Reaction of Amines of Anthraquinone  
Series With Diketene

78276  
SOV/79-30-3-30/69

1,5-di(acetoacetyl-amino)-anthraquinone (yield 83%),  
mp 226-227°; 1,7-diacetyl-anthrapyridone, does not melt  
at 330°; 1,8-di(acetoacetyl-amino)-anthraquinone (yield  
69.4%) mp 172°; 1-acetyl-N-methyl-anthrapyridone  
(yield 78%), mp 287-288° (decomp); 1-acetyl-N-methyl-  
6-bromanthrapyridone (yield 75%), mp 242°; 1-acetyl-N-  
phenyl-anthrapyridone (yield 38%), mp 241-242°;  
1-acetyl-N-methyl-6-phenylaminoanthrapyridone (yield 79%),  
mp 213°. Acetoacetyl and anthrapyridone derivatives  
can be used as dyes for acetate fabrics, or as inter-  
mediate products in synthesis of more complex dyes.  
There are 12 references, 5 Soviet, 4 German, 1 U.K.,  
1 U.S., 1 French. The 2 U.S. and U.K. references are:  
Kaslow, C. E., Sommer, N. B., J. Chem. Soc., 91, 1938  
(1907); Am. Patent 2501099.

Card 3/4

Reaction of Amines of Anthraquinone  
Series With Diketene

78276  
SOV/79-30-3-30/69

ASSOCIATION: Lensovet Leningrad Technological Institute (Lenin-  
gradskiy tekhnologicheskij institut imeni Lensoveta)

SUBMITTED: March 14, 1959

Card 4/4

9.30.10

TRC/1  
301/12-30-3-31/69

AUTHORS: Poray-Koshien, B. A., Pinnel, B. V.  
 TITLE: Structure and Conversions of Diazo Compounds. XIII.  
 Quantitative Characteristics of Acid-Base Properties of  
 p-Nitroaniline  
 PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 5, pp 877-879  
 (USSR)  
 ABSTRACT: The value of the acidity constant of diazo hydrate  
 can be calculated from the pH value of a 0.01 M  
 aqueous solution of organic salt formed by diazo cation  
 and diazo anion, which is 7.6, and from the acidity  
 constant of nitrosoamine acid  $K=2.5 \cdot 10^{-6}$ :

$$\text{pH} = 0.5\text{p}K_{\text{H}} + 0.5\text{p}K_{\text{a}} - 0.5\text{p}K_{\text{b}}$$

$$7.6 = 0.5 \cdot 14.4 + 0.5 \cdot 5.6 - 0.5\text{p}K_{\text{b}}$$

$$\text{p}K_{\text{b}} = 4.8; \text{from which } K_{\text{b}} = 1.6 \cdot 10^{-5}$$

From the above it is clear that the basicity constant  
 of diazo hydrate is the second basicity constant of

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Structure and Conversions of Diazo  
Compounds. XIII

78277

SOV/79-30-3-31/69

diazo anion, which can be expressed:

$$K_b = K_{b1} = \frac{[RN_2^+][OH^-]}{[RN_2OH]} = \frac{[RN_2^+]K_w}{[RN_2OH][H^+]} = \frac{K_w}{K_{a1}}$$

Thus, the first acidity constant of diazo cation is:

$$K_{a1} = \frac{10^{-14.4}}{10^{-4.8}} = 10^{-9.6} = 2.5 \cdot 10^{-10}$$

The first basicity constant of diazo anion can be calculated from:

$$K_{b1} = \frac{[RNHNO][OH^-]}{[RN_2O^-]} = \frac{[RNHNO]K_w}{[RN_2O^-][H^+]} = \frac{K_w}{K_a}$$

$$K_{b1} = \frac{10^{-14.4}}{10^{-5.8}} = 10^{-8.6} = 1.6 \cdot 10^{-9}$$

There are 8 references, 5 Soviet, 1 U.S., 1 U.K.,  
1 German. The 2 U.S. and U.K. references are: Lewis,  
E., Suhr, H., J. Am. Chem. Soc., 80, 1367 (1958);  
Saunders, K., The Aromatic Diazocompounds and Their  
Technical Applications, Sec. ed., Arnold, London (1949).

Card 2/3

5.1370

77674  
SOV/80-33-2-49/52

AUTHORS: Passet, B. V., Poray-Koshits, B. A.

TITLE: Brief Communications Applicability of Dilution  
Law to Aqueous Solutions of Diazocompounds.  
Communication XIV. Concerning the Structure and  
Conversion of Diazocompounds

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol 33, Nr 2  
pp 496-499 (USSR)

ABSTRACT: It was found that aqueous solutions of diazocompounds  
completely obey the Bouguer-Lambert-Beer Law. The  
optical densities of the diazocompounds at constant  
layer thickness and wave length are directly  
proportional to the concentrations of the dissolved  
compounds.

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Brief Communications. Applicability of Dilution Law to Aqueous Solutions of Diazocompounds. Communication XIV. Concerning the Structure and Conversion of Diazocompounds

77674  
SOV/80-33-2-49/52

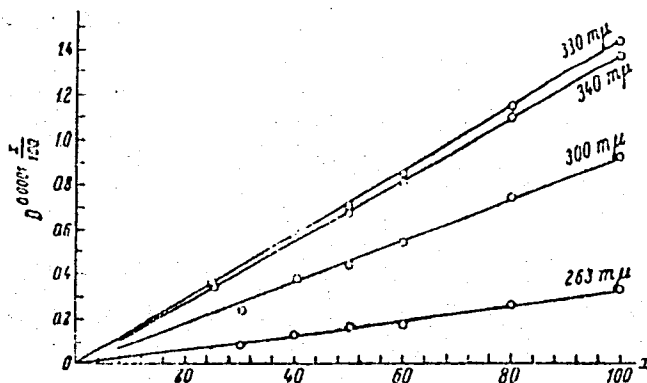


Fig. 2. Optical density of aqueous solutions of potassium salt of p-nitrodiazobenzene versus the diazo-anion concentration ( $\text{pH} \geq 11$ ). There are 2 figures; 2 tables; and 2 Soviet references. April 16, 1959

SUBMITTED:  
Card 2/3



NIKOL'SKIY, B.P., glav. red.; GRIGOROV, O.N., doktor khim. nauk, red.;  
PORAY-KOSHITS, B.A., doktor khim. nauk, red.; POZIN, [redacted],  
[redacted], red.; ROMANKOV, P.G., red.; FRIDRIKHSBERG,  
D.A., kand. khim. nauk, red.; RABINOVICH, V.A., kand. khim.  
nauk, red.; RACHINSKIY, F.Yu., kand. khim. nauk, red.; ZAYDEL',  
A.N., doktor fiz.-mat. nauk, red.; ZASLAVSKIY, A.I., kand. khim.  
nauk, red.; MORACHEVSKIY, Yu.V., prof., red.; GRIVA, Z.I., red.;  
KOTS, V.A., red.; TOMARCHENKO, S.L., red.

[Chemist's handbook] Spravochnik khimika. 2., izd., perer. i  
dop. Moskva, Khimiia. Vol.4. 1965. 919 p. (MIRA 19:1)

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PORAY-KOSHITS, B.A.; KVITKO, I.Ya.; FAVORSKIY, O.V.

Vilsmeier reaction in the aminodibenzyl series. Zhur. org.  
khim. 1 no.8:1516-1517 Ag '65. (MIRA 18:11)

KRYUKOVA, L.M.; PRADKINA, S.P.; FVITKO, I.Ya.; PORAY-KOSHITS, B.A.;  
FAVORSKIY, O.V.

Esters of aliphatic amino alcohols. Zhur. prikl. khim. 38 no.1:  
159-166 Ja '65. (MIRA 18:3)

FORAY-KOSHITS, B.A.; KVITKO, I.Ya.; SHUTKOVA, E.A.

Synthesis of amino esters, derivatives of benzimidazole. Zhur.  
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(MIRA 18:3)

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Amino esters. Part 4: Intramolecular N-alkylation of amino esters,  
derivatives of arylacetic acids. Zhur. ob. khim. 35 no.6:1098-  
1104 Je '65. (MIRA 18:6)

1. Leningradskiy tekhnologicheskii institut imeni Lenooveta.

PORAY-KOSHITS, B.A.; BELYAYEV, Ye.Yu.; SHADOWSKI, Ye.; ZAYONTS, V.I.

Reaction in which the nitroso group is cleaved off from  
aliphatic-aromatic nitrosamines. Dokl. AN SSSR 157 no.3:  
629-631 J1 '64. (MIRA 17:7)

1. Leningradskiy tekhnologicheskij institut imeni Lensoveťa.

PORAY-KOSHITS, B.A.; KVITKO, I.Ya.; FRANKOVSKAYA, I.V.; FAVORSKIY, O.V.

Synthesis of esters of the pyridine series. Zhur.prikl. khim.  
37 no. 5:1081-1087 My '64. (MIRA 17:7)

1. Leningradskiy tekhnologicheskij institut imeni Lensoveta.

PORAY-KOSHITS, B. A.; SOF'INA, E. N.; KVITKO, I. Ya.

Preparation and study of nitroso derivatives of iminobibenzyl.  
Zhur. ob. Khim. 34 no.6:2094-2095 Je '64. (MIRA 17:7)



PORAY-KOSHITS, B. A.; KVIKHO, I. Ya.

Interaction of the compounds containing mobile hydrogen atoms  
with substituted acid amides. Zhur. ob. khim. 32 no.12:4050-  
4056 D '62. (MIRA 16:1)

1. Leningradskiy tekhnologicheskij institut imeni Lensovetu.

(Formamide) (Aminomethylation)

PORAY-KOSHITS, B. A.; PASSET, B. V.; AVRAMENKO, Ye. F.

Structure and transformations of diazo compounds. Part 21:  
Transformations of aromatic diazo compounds in nonaqueous  
media. Zhur. ob. khim. 33 no.1:170-173 '63.

(MIRA 16:1)

1. Tekhnologicheskii institut imeni Lensovetu.

(Diazo compounds)

POPAY-KOSHITS, B.A.; KVITKO, I.Ya.

Chemical transformations of N,N-disubstituted aminomethylene derivatives of pyrazolone and rhodanine. Zhur. ob. khim. 34 no.9:2999-3005 S '64.

Structure of the product of hydrolysis of 1-phenyl-3-methyl-4-dimethylaminomethylene-5-pyrazolone. Ibid.:3005-3013 (MIRA 17:11)

PASSET, B.V.; PORAY-KOSHITZ, B.A.

Structure and conversions of diazo compounds. Trudy LTI no.46:  
133-146 '58. (MIRA 14:4)

(Diazo compounds)

PORAY-KOSHITS, B.A.; CHIN KEY-DAY [Ch 'in K'uei-tai]

Struture and conversiong of aromatic diazo compounds. Report  
No. 16: Structure of the so called "syn" and "anti" salts from  
p-sulfodiazobenzene. Trudy LTI no.60:92-102 '60. (MIRA 14:6)

1. Kafedra tekhnologii organicheskikh krasiteley Leningradskogo  
tekhnologicheskogo instituta imeni Lensoveta.  
(Diazo compounds)

PORAY-KOSHITS, B.A.; CHIN KEY-DAY [Ch'in K'uei-tai]

Structure and conversions of aromatic diazo compounds. Report  
No. 17: Structure of the so-called "syn" and "anti" salts of  
p-sulfodiazobenzene. Trudy LTI no.60:103-110 '60. (MIRA 14:6)

1. Kafedra tekhnologii organicheskikh krasiteley Leningradskogo  
tekhnologicheskogo instituta imeni Lensovetu.  
(Diazo compounds)

PORAY-KOSHITS, B.A.; CHIN KEY-DAY [Ch'in K'uei-tai]

Structure and conversions of aromatic diazo compounds. Report  
No. 18: Structure of so-called "syn" and "anti" salts from  
p-sulfodiazobenzene. Trudy LTI no.60:111-122 '60. (MIRA 14:6)

1. Kafedra tekhnologii organicheskikh krasiteley Leningradskogo  
tekhnologicheskogo instituta imeni Lensoвета.  
(Diazo compounds)

BRYUSKE, Ya.E.; PORAY-KOSHITS, B.A.

Certain characteristics of amphoteric compounds. Report No.1:  
Compounds with a single functional group. Trudy LTI no.60:123-137  
"60. (MIRA. 14:6)

1. Kafedra tekhnologii organicheskikh krasiteley Leningradskogo  
tekhnologicheskogo instituta imeni Lensovetu.  
(Diazo compounds) (Hydrogen-ion concentration)



BRYUSKE, Ya.E.; PORAY-KOSHITS, B.A.

Certain characteristics of amphoteric compounds. Report No. 2:  
Acid-base properties of aromatic diazo compounds. Trudy LTI no.60:  
138-148 '60. (MIRA 14:6)

1. Kafedra tekhnologii organicheskikh krasiteley Leningradskogo  
tekhnologicheskogo instituta imeni Lensovetu.  
(Diazo compounds)

PORAY-KOSHITS, B.A.; BRYUSKE, Ya. E.

Structure and conversions of aromatic diazo compounds. Report  
No. 19: Acid-base equilibrium of certain diazo compounds. Trudy  
LTI no.60:149-158 '60. (MIRA 14:6)

1. Kafedra tekhnologii organicheskikh krasiteley Leningradskogo  
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(Diazo compounds)

BRYUSKE, Ya.E.; PORAY-KOSHITS, B.A.

Effect of substituents in the aromatic ring on the acid-basic properties of diazo hydrides. Zhur.frikl.khim. 35 no.1:182-185 Ja '62. (MIRA 15:1)

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ARBUZOV, A.Ye., akad.; VAVILOV, S.I., akad.; VOL'FKOVICH, S.I., akad.;  
KOCHINA, P.Ya., akad.; LANDSBERG, G.S., akad.; LEYBENZON, L.S.,  
akad.; PORAY-KOSHITS, A.Ye., akad.; SMIRNOV, V.I., akad.; FESENKOV,  
V.G., akad.; CHERNYAYEV, V.I., akad.; KAPUSTINSKIY, A.F.; KORSHAK,  
V.V.; KRAVKOV, S.V.; NIKIFOROV, P.M.; PETROV, A.D.; PREDVODITELEV,  
A.S.; FRISH, S.E.; CHETAYEV, N.G.; CHMUTOV, V.K.; SHOSTAKOVSKIY, M.F.;  
KUZNETSOV, I.V., red.; MIKULINSKIY, S.R., red.; MURASHOVA, N.Ya.,  
tekh.n.red.

[Men of Russian science; essays on prominent persons in natural  
science and technology: Mathematics, mechanics, astronomy, physics,  
chemistry] Liudi russkoi nauki; ocherki o vydaushchikhsia deiate-  
liakh estestvoznaniia i tekhniki: matematika, mekhanika, astronomiia,  
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599 p. (MIRA 14:10)

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Nikiforov, Petrov, Predvoditelev, Frish, Chetayev, Chmutov, Shostakovskiy).  
(Scientists)

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